



Private Equity in Portugal: An analysis of post-exit portfolio companies' operating performance and capital structure

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BIBLIOGRAPHIC NOTE

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ABSTRACT

Over the last decade the private equity (PE) industry has experienced an important growing in the process of value creation in portfolio companies. However, in Portugal, this process seems not to be yet sufficiently developed in many aspects.

Although all stages (entry, holding and exit) of the PE process are important, it is also very important to understand whether portfolio companies continue to sustain themselves and generate value/growth for all its stakeholders after the PE investor leaves the company.

Despite the vast literature on the topic about the impact of value creation by the PE activity during the holding stage, there are no studies about the impact of PE after an exit strategy in Portugal, in terms of operational performance and capital structure.

This dissertation seeks to fill this gap and develop a deepen study about this subject on the Portuguese companies. We intend to analyse the impact of the PE exit on the operating performance of Portuguese PE industry, using a self-collected sample of 30 companies exited (disinvested) by a PE between 2005 and 2012.

The results show that target companies experienced a significant increase in their total assets and turnover after PE leaves the company. However, the target companies faced a decrease in earnings before interest, taxes, depreciations and amortizations (EBITDA) and a deterioration of the operating performance measures. The worst operating performances persist even after being adjusted for industry changes, suggesting that this can only be very partially explained by time and industry effects.

Key-words: Private Equity, Exits, Operational performance, Leverage

JEL-Codes: G24, G32, G34

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List of abbreviations

BV – Book value ratio

CAPEX – Capital expenditures

DE – Debt-to-equity ratio

EBITDA – Earnings before interest, taxes, depreciations and amortizations

EVCA - European private equity venture capital association

FCF – Free-cash-flow

IPO –Initial public offering

IRR – Internal rate of return

LBO – Leverage buyout

PE – Private equity

SBO – Secondary buyout

SME – Small medium enterprises

1. INTRODUCTION

The financial crisis sweeping global markets is reshaping the landscape of private equity (PE) investing. The credit reduction by banking institutions has limited the availability of leverage leading to the search for other sources of funding. Thus, in recent decades, the PE activity has come to mark your place in the Portuguese market as an important source of funding. It is essential not only for the development and growth of small medium enterprises (SME), but also to the stability of any business.

The academic discussion of value creation in PE exit transactions still has not been sufficiently analyzed in the Portuguese PE industry. The aim of this dissertation is to provide a better understanding of value creation/growth in PE transactions, more specifically to analyse in terms of capital structure and operational performance, and to compare the period's post-exit strategy with the previous full fiscal year before the exit.

There are several studies on the topic about the impact by the PE companies during the holding stage, but research related with the impact after the exit / divestment strategy is not seem to be sufficiently developed in Portugal.

In essence, the goal of this dissertation is to analyse the effect of the PE ownership in a company after an exit strategy (in the long term perspective), filling this gap in the literature and to develop a deeper study with Portuguese companies that have gone through by an exit strategy, comparing the years after exit with the full fiscal year before the exit.

By doing this we intend to understand and answer two main questions: Will the normal improvements expected by PE firms stands after an exit strategy or, instead, are easily eliminated? What happens to the capital structure of the company and operational performance after the exit strategy?

The remainder of this dissertation is organized as follows. In section 2, a review of the academic literature is presented. Section 3 explains the methodology, namely the sample selection process and all the empirical results regarding the portfolio companies' post-exit operating performance and capital structure. An analysis by exit route was also performed. Section 4 concludes.

2. LITERATURE REVIEW

2.1. THE DIFFERENT PHASES OF A PE TRANSACTION

Three main phases can be distinguished in a typical buyout: the acquisition phase, holding period and exit / divestment phase.

2.1.1. ACQUISITION PHASE

The acquisition phase starts with the negotiation and due diligence process, during which the investors familiarizes themselves with the company and develop a business plan for the buyout. This acquisition phase is a critical step for the success of the buyout investment as a whole.

Two different types of value creation could be distinguished in this phase: one at the time of negotiating the acquisition price and the other in the moment of developed the strategic plan. Regarding the first phase, the acquisition price of the company may be a barrier for all future evaluations and determines the break-even-point for the equity investors. On the other hand, the strategic plan phase sets the goal and changes to be implemented in the company in order to improve the performance during the holding period.

Some authors (e.g., Baker & Montgomery, 1994) argued that “much of the buyout value generation is front loaded, in that it is determined through decisions that are already taken during the acquisition phase”.

2.1.2. HOLDING PHASE

The holding period is described as the phase where strategic, organizational and operational changes prescribed in the initial business plan are implemented and the intended operational improvements are realized. This phase typically lasts between 3 to 5 years in Europe, and it is the most crucial phase for the value creation in the buyout process.

In practice, this is more an iterative phase than a linear process because the business plan and all the strategies are constantly changed.

2.1.3. EXIT / DIVESTMENT PHASE

The divestment or exit is the final phase of a buyout and it is during this period that the investment return is determined. For investors, this is the crucial part of a buyout because is when they realize the returns and determines the difference between acquisition and exit price. The period after this phase will be addressed throughout this dissertation, as well as the impact that PE companies create, even after the divestment phase.

Therefore, the potential exit opportunities from an investment play an important role in an investor's decision about whether or not to invest in a company. Generally speaking, several methods are available to PE investors to exit their investment. The most important and largely used exits routes are: Initial Public Offering (IPO), Trade Sales, Secondary buyout and Leverage Recapitalization.

2.2. PRIVATE EQUITY (PE) AND THE MAIN VALUE DRIVERS

Value creation in PE-backed companies results from various sources and therefore has to be analyzed on different aspects. Jensen (1989) refers that the primary source of value creation in buyouts come from organizational changes that lead to improvements in firms' operating and investment decisions and shows that “these organizations are not managed to maximize earnings per share but to maximize *value*, with a strong emphasis on cash flow”. Loos (2005) distinguished between drivers that have a direct effect on the operating efficiency or relate to the optimal utilization of assets of the company and drivers which are non-operational in nature, but lead to an expansion of value created. Several authors, such as Pindur (2007), Brigl et al.(2008), Guo et al. (2011), Achleitner et al. (2011), also show that there are three main potential explanations for the value creation: positive changes in operating performance, in evaluation multiples and in leverage. To these authors, firms' value increase if there are improvements in operating performance, such as improve profitability, elimination of unproductive assets and through value increasing acquisitions. Firms benefit also from a positive change on market or industry multiples while the firm is in the hands of the PE firm. Finally, higher leverage also leads to larger tax shields which increase the cash flow available to the providers of capital (Guo et al., 2011).

Regarding the operational performance source of value, several studies (Acharya et al., 2013; Cumming et al., 2007; Kaplan, 1989; Lichtenberg and Siegel, 1990) have analyzed this aspect and show that leveraged buyouts (LBO) create value by improving the operating performance. Guo et al. (2011) also demonstrate that operational improvements of PE-backed firms exceed those of comparable publicly listed peers.

Comparing with the improvements in operating performance much less research is available regarding changes in valuation multiples. However, Acharya et al. (2013) and Guo et al. (2011) conclude that PE-backed firms improved the valuation multiples between entry and exit more than the group of public benchmarks not backed by PE sponsors. Guo et al. (2011) shows that changes in industry EBITDA multiples over the holding period accounts for 18% of the returns to total pre-buyout capital and 12% to total post-buyout capital.

Several studies analyze the third mechanism of value creation, the leverage. Axelson et al. (2010) show that when credit is abundant and cheap, buyouts become

more leveraged and consequently leads to an improvement in the cash flows. Kaplan (1989) concludes that higher leverage ratios are associated with larger tax shields. Finally, Guo et al. (2011) refer that the effect of debt increased the available cash flow to the providers of capital.

More recently, the authors have begun to pay more attention to corporate governance mechanisms as a source of value creation. In fact, according to Jensen's (1986, 1989) free-cash-flow (FCF) theory, LBO results in corporate governance mechanisms that reduce agency costs and increase firm value through improved operating efficiency. Consistent with this Jensen's theory, Kaplan (1989), Smith (1990), Lichtenberg and Siegel (1990), Acharya (2010) and others provide evidence that LBO do create value by significantly improving the operating performance of acquired companies and by create cash in the form of high debt payments.

In this dissertation we will follow more in detail the first two drives of value creation – Operating Performance and Leverage, not only due to the data available but also because they represent the main two sources of value.

2.2.1. OPERATING PERFORMANCE

Following the buyout it is expected the improvement of operating performance and the investment decision. A buyout is also more likely to occur in companies that show significant potential to generate higher cash flows (Kaplan, 1989; Lichtenberg & Siegel, 1990; Smith, 1990).

A substantial literature show that buyout transactions have a positive effect on the operational performance of target companies (Achleitner, 2010, 2011; Brigl et al., 2008; Cumming, 2007; Guo et al., 2011; Groh, 2009; Jensen, 1989; Kaplan, 1989; Lichtenberg & Siegel, 1990; Loos, 2005; Nikoskelainen, 2007; Pindur, 2007; Smith, 1990).

Kaplan (1989) provides early evidence of management buyouts' strong improvements in operating performance, even after adjustments for industry-wide changes. He finds that PE-backed firms experience increase in operating income, increase in net cash flow and decrease in capital expenditures (CAPEX).

Smith (1990) proves that the improvements in operating cash flows are correlated with the buyout-induced changes in debt ratio and ownership structure, consistent with Jensen's (1989) argument that organizational changes play an important role in the efficiency gains.

Loos (2005) conclude that 25% of value creation comes from sales growth. Pindur (2007) proves that EBITDA growth represents 45% in the increase of value of portfolio firms and only 28% and 22% comes from change in multiples and FCF effect, respectively.

Guo et al. (2011) show that changes in operating performance and in industry evaluation multiples each account for approximately 20% of returns to pre-buyout capital. They find that gains in operating performance are either comparable to or slightly exceed those observed for benchmark firms matched on industry and pre-buyout characteristics, depending on the measure of performance and the post-buyout period considered. Brigl et al. (2008) proves that 46% of value creation comes from sales growth and 10% from margin expansion.

Achleitner et al. (2011) find that EBITDA multiple expansion has a strong influence on equity internal rate of return (IRR) and prove that managing and timing the valuation of the buyout company is an important acquired skill of successful PE firms, and not simply a matter of luck.

Chung (2011) while studying the buyout of private companies found that in that type of companies rather than improving operating efficiency these firms grow in size and make greater investments. Companies experienced an increase in EBITDA – industry-adjusted EBITDA grows by 12% during the three post-buyout years – but margins do not improve and these companies face a decline in the average profitability after the buyout.

However, Achleitner et al. (2012) conclude that two-thirds of value creation can be attributed to operational and market effects and the remaining (only one-third) is due to leverage effect. Comparing smaller to larger deals they also show that the leverage effect is higher for larger deals while revenue growth plays a more important role for smaller deals, and deals completed in a recessionary environment generate higher median returns based on a higher use of leverage and more significantly multiple expansion.

2.2.2. LEVERAGE / FINANCIAL ENGINEERING

Regarding the leverage, the use of significant amounts of debt in a PE transaction contributes to value creation itself as it represents an important factor in the financing structure of the transaction. The value creation results not only from the high leverage used that allows magnifying the return, but also from tax savings and from the management focus on cash flows to ensure simplicity in the investment and sustainable growth of the company. Some authors (e.g., Berg and Gottschalg, 2003) call this type of value driver, Financial Engineering, “which means that the optimisation of capital structure and minimization of after-tax of capital of the portfolio company is one of the most widely acknowledged levers applied by buyout associations to create value”.

Ross (1977, 1978) shows that under asymmetric information, managers with satisfactory information are likely to hold a large share of the firm’s stock and obtain outside financing disproportionately with debt.

Grossman and Hart¹ (1982) explain the use of debt as a financial instrument and argue that debt can induce management to act in the interest of investors in ways that cannot be duplicated with optimally designed compensation packages.

Jensen (1986, 1989) also found that the use of debt in buyouts facilitates a reduction of available FCF and enforces managers to attend debt payments rather than spend it inefficiently.

Kaplan (1989) studied the tax benefits and the evolution of American debt in a sample of 76 management buyouts and proves that book-value (BV) ratio increased from an average of 20.7% to 85.6% after operation, which reflects the high leverage used. He also showed, as well as Kaplan and Stein (1993), that systematic risk of equity in leveraged buyouts is much smaller than what would normally be expected given the amount of financial leverage in these transactions.

Papelu (1990) gives one explanation for the superior performance of equity in buyout transactions and the substantially lower risks – the beneficial organizational changes. He shows, under this hypothesis, that although LBO increases the financial risk of the company, they reduce business risk at the same time. A study developed by

¹The authors stated the idea that “in a corporation owned by many small shareholders there is an “incentive problem”; i.e., the managers (or directors) have goals of their own, such as the enjoyment of perquisites or the maximization of their own income, which are at variance with the goals of shareholders, which we assume to be profit or market value maximization”

Jensen et al. (1992) show evidence of operating risk reductions in a case study of a leveraged buyout developed by Loos (2005).

Opler and Titman (1993) prove that a larger percentage of LBO firms use more debt than is needed to eliminate taxes, which means that the role of debt rather relates to the incentive problems associated with FCF and the cost of financial distress are therefore considered to be much lower. They also argue that FCF problems as well as potential financial distress costs are important determinants of which firms undertake LBO and in some periods of time they found out that firms undertaking LBO are more diversified than other firms in the economy.

Achleitner et al. (2010) found evidence in a sample of 206 European buyouts between the period 1991 and 2005 that 32% of the value created in these operations was explained by effects on leverage. They also showed that this effect was greater for larger deals given their greater debt capacity. On the other hand, they found that the median debt-to-equity ratio (DE) decreased from 1.4 at the time of operation to 0.6 at the time of divestment, which proves the strategy of creating value in this type of operations.

Acharya et al. (2013) in a study involving 66 businesses in the United Kingdom reached similar results, namely, a median ratio of 1.6 at the time of operation and 0.6 at exit. They also described similar developments in debt / EBITDA ratio: register 5.1 at operation time and 4.0 in the divestment / exit time.

2.3. EXIT / DIVESTMENT

In line with the strong growth in Europe over the past decades, PE in Portugal as a form of financial intermediation has become a focus interest for academic research. However, even in Europe, only few studies to date concentrate on the divestment stage of portfolio companies, the so-called, exit process.

2.3.1. DIFFERENT TYPES OF EXIT TRANSACTIONS

According to the definition of many authors in this field, there are five main types of PE portfolio company exits: trade sales, secondary buyout, IPO, buy-backs and write-offs (Cumming and Macintosh, 2001, 2003a, 2003b; Gompers and Lerner, 1999; Wright and Robbie, 1998).

The trade sale is a sale of a portfolio company to a trade buyer and is usually referred as “mergers or acquisitions exit”. Several academic authors analyze this common exit route for European venture capital and PE industry (e.g., Wright et al., 1993).

On the other hand, secondary buyout is a transaction where a company is sold from one financial sponsor to another. The key difference to a trade sale is that only the PE fund sells its interest to a trade buyer, while the entrepreneur or management and other investors retain their stakes in the company (Povaly, 2007).

The third type of exit, IPO, represents a sell of the company shares to public investors and has many studies in the literature, such as, Cumming and Macintosh (2003b).

Regarding the buy-backs, in this form of exit transaction a PE fund sells its shares back to the company or entrepreneur that sold the originally shares. Otherwise, the last type of exit route, write-off, occurs when a venture capitalist walks away from its investment, not able to realize initially expected returns (Povaly, 2007).

Gompers and Lerner (1998) show that in order to maximize stated returns, PE firms distribute shares of portfolio companies to their investor following IPO rather than selling shares themselves. They also refer that PE firms have preference in distributions which allow them to lock-in stated returns which are relevant for their compensation before negative impact on stock prices occur.

Bascha and Walz (2001) prove that convertible securities, debt securities with an option to be converted into equity, are superior to a pure mix of debt and equity in a portfolio firm's capital structure and leads to optimal exit decisions. Convertible securities minimize conflicts of interest between the venture capitalist and the entrepreneur or manager of the company.

Cumming and Macintosh (2003a) show, by doing a statistical analysis of survey data, that the link between information asymmetry is not only the choice of exit route but also the degree of the divestment (partial vs. total).

Shepherd et al. (2003) found that inexperienced investors' unfamiliarity with the decision structure contributes to errors in judgment. Highly experienced investors are often driven by intuition and heuristic processing which makes decisions susceptible to forms of bias and error.

Lieber (2004) shows that a proactive exits process planning (from the time of the acquisition) is crucial and that the co-operation between PE investors and portfolio company management is necessary to ensure an overall process success.

2.3.2. EUROPE VS PORTUGAL

Table 1 presents the amount exited by PE investors by exit type in Portugal during the years 2011 and 2012. In 2012 the amount of divestment in PE-backed companies decrease to €91 million (from 49 divestments) from € 99 million (from 48 divestments) in 2011.

The exit strategy in terms of number of operations focused primarily in buyback transactions (to the management team or shareholders), trade sales and write-off. All accounted for 73% of the number of divestiture. The trade sale accounts for €53 million due largely to an important operation that skews the average amount divestiture from the trade sale. The buyback transactions involved € 14 million while increasing the number of transactions from 18 to 26. Regarding write-off operations, the amount involved increase from 0.3 million (in 2011) to 12 million euros in 2012.

As in previous years, the divestment of stakes in companies financed by Portuguese PE investors via IPO was once again absent.

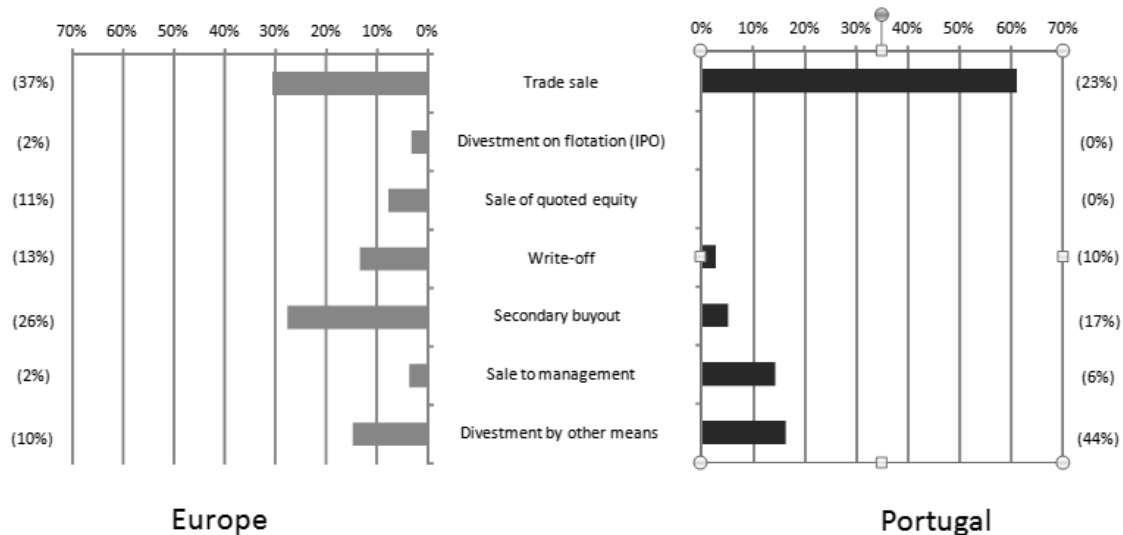
Table 1: Divestment in Portugal by exit route

	2011				2012			
Amounts in € thousands	Amount at cost	%	Number of companies	%	Amount at cost	%	Number of companies	%
Exit route								
Divestment by trade sale	7 683	7.7	4	8.0	52 616	57.8	8	14.5
Divestment by public offering	0	0.0	0	0.0	0	0.0	0	0.0
Divestment by write-off	304	0.3	5	10.0	12 106	13.3	6	10.9
Repayment of silent partnerships	0	0.0	0	0.0	1	0.0	1	1.8
Repayment of principal loans	3 795	3.8	13	26.0	2 033	2.2	7	12.7
Secondary buyout (SBO)	5 486	5.5	2	4.0	1 606	1.8	4	7.3
Sale to financial institution	0	0.0	0	0.0	0	0.0	0	0.0
Sale to management	1 938	2.0	18	36.0	14 075	15.5	26	47.3
Divestment by other means	80 120	80.7	8	16.0	8 554	9.4	3	5.5
Total divestment	99 325	100.0	48	100.0	90 991	100.0	49	100.0

Source: EVCA(2013)

Figure 1 compares the exit routes used by Portuguese and Europeans investors.

Figure 1: Comparison of divestment activity between Europe and Portugal (%) (EVCA. 2012)



Like in Portugal, the IPO in Europe is also the exit strategy less used. However, contrary to Portugal secondary buyout (SBO) gained greater relevance.

Divestments / exits in Europe, in terms of number, increase in 2012 compared to 2011 and remained strong as the second highest ever recorded level in Europe. However, in terms of amount at cost, exits in Europe reached € 21.6 billion in 2012 compared to €30.3 billion in 2011. The amount for 2012 was driven by a very large transaction, which by itself accounted for more than 60% of the total exit value. Already in 2011 two large transactions accounted for 63% of the total.

In 2012, trade sale stood out as the most notable exit route in Europe. The amount of exit value recorded in this category was driven significantly by the one large exit noted earlier and caused trade sales to account for 36.4% of the total exit amount. It is also important to notice that secondary buyout appears as the second exit route more important with a total amount in 2012 of € 5.5 billion (25.7% of the total).

Public offering exits in Europe in 2012 suffered a slight increase to 14.8% in the total amount compared to 11.6% in 2011. Europe has historically experienced very few write-offs and sales to management. Both together explain 11.2% of the total amount at cost.

A survey carry out by Price Waterhouse Corporate Finance (EVCA, 2010) shows that European PE consider IPO as the ideal exit and consequently do not devote enough attention to trade sales and also that many PE do not plan for exit from the date of investment. They also prove that most PE does not promote their investments widely enough and many do not make full use of intermediaries to help them. The management of a company is considered by them an obstacle to a profitable exit.

Table 2: Divestment in Europe by exit route

	2011				2012			
	Amount at cost	%	Number of companies	%	Amount at cost	%	Number of companies	%
Exit route								
Divestment by trade sale	11 326 038	37.3	456	21.4	7 858 264	36.4	365	16.8
Divestment by public offering	3 504 469	11.6	118	5.5	3 203 528	14.8	93	4.3
Divestment by write-off	3 877 200	12.8	322	15.1	1 928 099	8.9	402	18.6
Repayment of silent partnerships	307 549	1.0	430	20.1	235 578	1.1	470	21.7
Repayment of principal loans	1 120 581	3.7	192	9.0	1 042 103	4.8	232	10.7
Secondary buyout	7 855 466	25.9	285	13.3	5 545 439	25.7	268	12.4
Sale to financial institution	1 433 905	4.7	45	2.1	754 543	3.5	77	3.6
Sale to management	660 791	2.2	213	10.0	482 612	2.2	182	8.4
Divestment by other means	243 211	0.8	74	3.5	552 587	2.6	78	3.6
Total divestment	30 329 210	100.0	2 057	100.0	21 602 754	100.0	2 100	100.0

Source: EVCA(2013)

3. AN ANALYSIS OF POST-EXIT PORTFOLIO COMPANIES IN PORTUGAL – EMPIRICAL STUDY

In this section the sample and the methodology will be presented as well as the main findings concerning the capital structure and operational performance change after a PE investor leaves the company.

First of all, the main criteria used in defining the sample will be explained and all the characteristics of the companies backed by PE firms that performed the divestment / exit in Portugal will be presented.

Subsequently, the methodology adopted as well as the main key indicators of the companies included in the sample is explained.

Finally, the results regarding the impact of a PE exit / divestment strategy (comparing to the previous full fiscal year before de exit) will be presented. This impact will be analysed in terms of (i) operational performance and (ii) capital structure.

3.1. DATA AND SELECTED SAMPLE

In order to select our sample, the Capital IQ database² was used. This database is commercialized and managed by Standards & Poor's and provides information of the company name, acquisition date and the buyers/investors.

First, we select all transactions that fulfil the follow requirements: (i) the portfolio company must have its headquarters in Portugal; (ii) the investors (buyers) must meet one of the following criteria: “*Private Investment Firm*”, “*Financial Service Investment Arm*”, “*Public Investment Firm*”, “*Public Fund*”, “*All investment Firms*” or “*Private Fund (Special Purpose Issuer Trust)*”; (iii) the type of transaction is “*Private Placements*”; and (iv) the transactions occurred between the years 2005 and 2012. According these requirements 87 transactions were selected.

Then, 16 transactions were dropped since they were “*cancelled*” or simply “*announced*” transactions. After that, transactions that included the same company (in particular new capital injections and listed companies) and where the buyer was a state (or related) company were excluded, since these types of transactions may pursue other

²Capital IQ description and potential biases on sample selection are discussed in detail in the appendix.

goals than strictly wealth-maximizing objectives, such as territorial development and employment growth (Mendes, 2011). By doing this, the sample was reduced to 56 transactions.

Subsequently, and in order to do the analysis of a company after exit / divestment strategy, 11 recent exit transaction occurred in 2012 and 2013 were also dropped because we do not have a complete fiscal year after that. Thus, the sample decreased to 47 transactions.

After selecting the sample we used the SABI databases³, data provided by Bureau Van Dijk, which contains financial information for over 20.000 Portuguese companies from 1999 onward in order to obtain accounting information of each company, as well as the information to the industry level. We could not gather accounting information for the year following the exit year for 17 companies and they were excluded and so, our final sample was reduced to 30 exits.

³SABI description and potential biases on sample selection are discussed in detail in the appendix.

3.2. METHODOLOGY

In this dissertation, three variables are used to assess the performance of the portfolio companies after the exit - Assets, turnover and EBITDA - and were compared with the previous full fiscal year before exit. All variables are presented before interests and taxes, therefore controlling for effects resulting from leverage or other financial decisions.

In order to assess the operating performance post-exit, following the methodology proposed by Jain and Kini (1994), three main indicators were used: (i) EBITDA margin⁴ as a measure of profitability; (ii) Return on assets⁵ as measure of productivity; (iii) and Assets rotation ratio (turnover ratio)⁶ as a measure of efficiency. Many other authors use these three ratios to measure operating performance (e.g., Guo et al., 2011; Kaplan, 1989b).

On the other hand, to assess the effect of the exit on capital structure we used the financial autonomy ratio⁷.

Growth changes in portfolio companies, operating performance and capital structure were measured over a four-year post-exit period (year t+1 to year t+4) related to the last full fiscal year before the divestment strategy (year t-1). Having a horizon of more than a year we can make better conclusions about the impact that PE firms continues to have in the company, even after the exit strategy. The overall change between the pre-exit year and the first three full post-exit years (3y avg.) is also presented. The fiscal year of the exit (year t) is not considered as it includes both pre- and post-exit operations making it difficult to differentiate between pre- and post-exit performance. Therefore, we just have used all full fiscal years before and after the exit year.

The growth changes post-exit (in terms of assets, turnover and EBITDA) was calculated according to the formula $(X_i^{n+t} - X_i^{n+t-1})/X_i^{n+t-1}$ where i refers to the company, n to the exit year and t to the number of years before the exit transaction. However, the indicators previously presented (to measure operating performance and

⁴ EBITDA / Turnover

⁵ EBITDA / Total assets

⁶ Turnover/ Total assets

⁷ Equity/Assets: this indicator aims to assess the evolution of the capital structure of a company, as well as your leverage. This is the mains indicator used in Portugal to characterize the funding policy adopted, i.e, the composition of the equity and debt capital in financing assets.

capital structure) were calculated according the following formula $X_i^{n+t} - X_i^{n+t-1} \times 100^8$, where i refers to the company, n to the exit year and t to the number of years before the exit transaction.

The results for each indicator were calculated from the median⁹ of the set of changes and they are reported as both unadjusted and adjusted by industry changes during the same period. Industry data was extracted from the “*Central de Balanços – Árvore de análises*” by Bank of Portugal. “*Central de Balanços*” provides all the information – key indicators, balance sheet, income statement and cash-flows – according to industry classification *Rev. CAE 3*.

Unfortunately, industry data provided by “*Central de Balanços*” suffers from severe limitations that narrow substantially the possibilities of analysis. Before 2005 industry data was obtained through non-mandatory annual surveys. However, since 2006 these surveys have become compulsory. This change makes income statements and balance sheets not directly comparable between these two periods. As a consequence some variables cannot be calculated for any industry for the year 2006 since the calculation is partly based on the comparisons of the same variables between 2006 and 2005. Consequently, we selected the indicators previously presented instead of others with less or no information.

Industry matching was based on the company’s four digit CAE Rev. 3 code and industry adjustment values are obtained by subtracting the changes in the portfolio companies’ operating performance ratios, from the industry average change in the same ratio, during the same period. Through this adjustment it is possible to control for both time period and industry effects.

Finally, a Wilcoxon sign rank test was performed to check whether the median percentage change in operating performance and industry-adjusted operating performance variables are significantly *different* from zero.

It is also important to refer that an analysis of performance by exit route was developed to analyze the best performance of indicators in each of the exit route and if any exit route stands out for its performance.

⁸ Taking into account the limitations of this methodology, particularly due to the existence of negative initial values, was also tested, in terms of operational performance and capital structure, the formula $(X_i^{n+t} - X_i^{n+t-1})/X_i^{n+t-1}$. However, the obtained results are skewed from reality.

⁹ In this paper, we use the concept of median rather than the mean given the potential distortion that can occur due to the heavy weight of outliers that dominate the mean and make the distribution very skewed. This outlier dominance may be particularly severe in the presence of a small sample, as is the case here.

3.3. STATISTICAL DESCRIPTION OF THE SAMPLE

As we can see in the Table 3, although there is a wide dispersion between the years considered in the sample, the transactions occurred mainly during the years 2005 and 2006. Later, between 2007 and 2008, we can observe a sharp decrease in the PE transactions, perhaps related to the onset of the current financial crisis. We detect maintenance of the number of investments in the last two years under review, according to the evidence already studied.

Table 3: Distribution of the number of operations per entry year

Entry year	Number of transactions
1999	1
2000	4
2001	1
2002	0
2003	4
2004	4
2005	7
2006	6
2007	1
2008	2
Total	30

On the other hand, the Figure 2 below shows that the exit transactions in the selected sample occurred mainly between the years 2007 and 2010, which is also consistent with previous evidence.

Figure 2: Distribution of the number of exit transactions by year

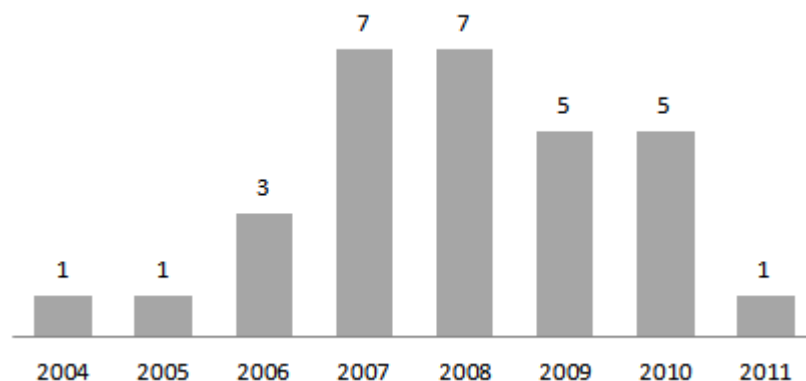


Table 4 shows the distribution of the holding period. We can notice that we have a mean (and median) duration of 4 years which is consistent with the literature and with what happens in Europe, in general.

Table 4: Holding Period characteristics

	Holding period
mean duration	4
median	4
max.	10
min.	1

Table 5 describes the distribution of the 30 portfolio companies across industries. The transactions occurred in a variety of industries and include almost every sector of activity. The predominant sector is the tertiary with the wholesale and retail industry with a weighting of 27% in the total sample, immediately followed by manufacturing (23%) and Consulting, scientific and technical activities (13%).

Table 5: Distribution of number of operations by sector / economic activities (CAE¹⁰)

Sector / economic activities	Number of transactions	%
Consulting, scientific and technical activities	4	13%
Information and communication activities	3	10%
Manufacturing	7	23%
Wholesale and retail	8	27%
Other	8	27%
Total	30	100%

The Table 6 ranks the PE firms according to the number of deals completed. All the top 5 firms reported are Portuguese and clearly dominate the market. In fact, an entity belonging to a banking group represent a weight of 17% in the total sample indicating the

¹⁰Portuguese Classification of Economic Activities Revision 3 (CAE Rev. 3) according to the National Statistics Institute.

important presence of the banking sector in this type of investment, unlike what happens in other markets such as the UK and the United States (Mendes, 2011).

Overall, these results put in evidence a market predominately domestic, with little competition and dominated by four major PE houses, where banks and their affiliate PE firms are more important than independent PE firms.

Table 6: Distribution of the number of operations by general partner

General partner	Number of transactions	%
CA Consult SA	3	10%
Explorer Investments, S.C.R. S.A.	3	10%
Change Partners - SCR. S.A.	3	10%
Portugal Capital Ventures	4	13%
Espírito Santo Capital. S.C.R.. S.A.	5	17%
Others	12	40%
Total	30	100%

The Table 7 proves that the main type of exit route in Portugal is the Trade sale as previously presented in section 2.3.2. In fact, also the SBO has had an increasing impact on the Portuguese market. Buyback occupies the second position and is consistent with Cumming and Macintosh (2003b) hypothesise that in circumstances of high information asymmetries (and in Portugal it seems to be large) one of the exit routes preferences from a value maximisation is the buyback.

Table 7: Distribution of number of operations by exit route

Exit Route	Number of transactions
Buyback	10
Trade sale	13
SBO	7
Total	30

Table 8 presents the main characteristics of companies considered in the sample in the exit / divestment year (t). There is a considerable size of the companies that received intervention of Portuguese PE funds with average assets (median) of €28.5 million (€12 million). The mean (median) of liabilities is €21.1million (€8.4 million), while the mean

(median) of EBITDA is €2 million (€0.6 million). Also the small number of employees reflects small businesses and meets the type of companies that invest more in PE in Portugal–SME.

As expected, all variables exhibit significantly smaller values compared to those seen in previous operating performance studies (Achleitner et al., 2011; Brigl et al., 2008; Guo et al., 2011; Kaplan, 1989; Pindur, 2007). Obviously, the small scale of the Portuguese economy and the nature of the targets (private companies) result in quite a modest deal size when compared to international studies.

Table 8: Portfolio companies' characteristics in the exit/divestment year

Variable	Mean	Median	Standard Deviation	N
Assets	28.266.564	12.014.735	40.581.773	30
Liabilities	21.053.849	8.416.172	35.105.925	30
Indebtedness (%)	71..94	66..72	38	30
EBITDA	1.978.185	565.039	3.595.458	30
number of employees	68	28	98	30

Unit: euros

In sum, we can conclude that the selected database allowed us to obtain a good sample of the investments and divestments of PE type / venture capital in Portugal. Furthermore, the results show that the market is small where there is little competition, since the five largest PE firms dominate about half the Portuguese market.

3.4. POST-EXIT PORTFOLIO COMPANIES' ANALYSIS – OPERATING PERFORMANCE AND CAPITAL STRUCTURE

With the aim of measuring the impact and dimension of changes / growth in portfolio companies after exit, we will calculate the change in the main accounting indicators, including: assets, turnover and EBITDA. These will allow us to answer the following research questions: Will the normal improvements expected by PE firms stands after an exit strategy or, instead, are easily eliminated? What happens to the capital structure of the company and operational performance after the exit strategy?

3.4.1. GROWTH

Table 9 reports the median growth in total assets, EBITDA and turnover for the four post-exit years.

The results show a steady and significant growth in total assets, reaching its peak at 39.15% in fourth year post-exit. To all the years we get statistically significant results to a level of significance of 5%. The median increase in total assets over the three-year period equals 29.5% and is significant at the 5% level. Adjusted to industry we see the same tendency and with higher values all the years. However, unlike the analysis without industry adjustment, the results are not statistically significant.

Turnover also exhibits a growth in all four post-exit years and a median three-year period average growth of 14.82%. These results are significant at least at the 10% level till the third year post-exit. Results adjusted to industry also show a growth all the years except in the last one (t+4).

Although not statistically significant, portfolio companies exhibit a decrease in EBITDA over the three-year period post-exit of -24.21%. In all the years we see a higher decrease that gets worse year by year. However, once again these results are not statistically significant.

Table 9: Growth changes results (median variance)

	t-1...t+3 (3y avg.)	t-1...t+1	t-1...t+2	t-1...t+3	t-1...t+4
PANEL A: Assets					
Variation (median)	29.5% **	12.71% **	22.06% **	33.32% **	39.15% **
n° observations	20	28	24	20	17
Variation (median) adjusted to industry	40.21%	27.51% **	39.83%	54.04%	45.39%
n° observations	18	26	21	18	14
PANEL B: Turnover					
Variation (median)	14.82% **	19.19% ***	4.15% *	4.75% *	20.18%
n° observations	17	24	20	17	15
Variation (median) adjusted to industry	13.05% *	29.03% **	13.33% *	16.76% *	-5.29%
n° observations	16	23	19	16	13
PANEL C: EBITDA					
Variation (median)	-24.21%	-19.80%	-25.15%	-31.58%	-50.39%
n° observations	20	28	24	20	17
Variation (median) adjusted to industry	-95.58%	-17.80%	-79.68%	-89.26%	-61.34%
n° observations	18	26	21	18	14

*, **, *** significantly different from zero at 10%, 5% and 1%, respectively

These findings post-exit strategy show us that portfolio companies become larger not only during the holding period (results of Chung (2011) reveal that private targets become larger after the buyout), but also after an exit strategy, which means that companies after a divestment strategy continue to grow their business.

3.4.2. OPERATING PERFORMANCE

The Table 10 shows the change in the operating performance after the exit.

As we can see in Panel A, there is a decline of productivity in all the years comparing with the last full year before the exit, which leads to the conclusion that after an exit strategy the companies have less capacity to generate cash flows with their assets. In fact, after the exit the productivity falls in all four post-exit years: -0.04 p.p., -0.03 p.p., -0.04 p.p. and -0.03 p.p. in years t+1, t+2, t+3, and t+4, respectively. Adjusted by industry changes and during the same period the decrease of productivity after the exit strategy is even more severe in the years t+2, t+3 and t+4. This situation could be

explained by the absence of synergies previously created by the PE firms in their target companies that disappear after that. Nevertheless, none of these results are statistically relevant.

However, even if profitability deteriorates, companies can still create value by increasing the productivity of their assets, for example by selling non-productive assets (Guo et al., 2011).

Panel B show us the portfolio companies EBITDA margin and in all the years we have a decrease (median of -0.02, -0.03, -0.04 and -0.09 percentage points). This means that the operating margin of the company has a consistent annual decrease, but short. Thus, after an exit strategy we can say that companies continue to have a great EBITDA margin but with a low negative variations year by year. However, none of these variations is statistically relevant, revealing that the negative performance of portfolio companies' post-exit can't be justified by industry or by the companies itself.

These findings are consistent with Mendes (2011), who says that companies that have intervention by PE firms faced a performance in terms of profitability that after the investment has been deteriorating. The same applies after the exit.

Finally, panel C presents the evolution of the assets rotation ratio (ratio between turnover and total assets). Analyzing the asset turnover ratio allow us to recognize if the changes in productivity are only the result of lower margins or also the result of a decrease in portfolio companies post-exit efficiency in using its assets to generate sales. The analysis of this indicator show us that in the first year after the exit strategy and comparing to the year before exit, there is an increase in the efficiency of the use of companies' assets, while in the following years we assist to a little decrease (median of -0.05, -0.04 and -0.09 percentage points in t+2, t+3 and t+3, respectively). These results lead us to the conclusion that there is a significant improvement in efficiency in the first year after the divestment, remaining relatively constant but with slight decreases thereafter. Considering the values adjusted by industry, the results are similar. However, and once again, none of these results are statistically significant except to the first year post-exit (adjusted by industry) with a level of significance of 10%.

Table 10: Operating performance ratios results (median variance)

Year relating to the exit transaction	t-1...t+1	t-1...t+2	t-1...t+3	t-1...t+4
PANEL A: ROA				
Variation (median) p.p.	-0.04	-0.03	-0.04	-0.03
n° observations	28	24	20	17
Variation (median) adjusted to industry p.p	-0.03	-0.07	-0.06	-0.07
n° observations	26	21	18	14
PANEL B: EBITDA margin				
Variation (median) p.p.	-0.01	-0.02	-0.03	-0.05
n° observations	24	20	17	15
Variation (median) adjusted to industry p.p	-0.03	-0.06	-0.07	-0.07
n° observations	23	19	16	13
PANEL C: Turnover ratio				
Variation (median) p.p.	0.07	-0.05	-0.04	-0.09
n° observations	24	20	17	15
Variation (median) adjusted to industry p.p	0.09*	-0.10	-0.14	-0.06
n° observations	23	19	16	13

*, **, *** significantly different from zero at 10%, 5% and 1%, respectively.

These results show us that there is a decrease in ROA and EBITDA margin in the years after the exit strategy. However, the small decrease is not sufficient to get the conclusion that companies will not survive after the exit. Instead of that, we can conclude that despite slight negative variations of median, companies managed to maintain an operational performance within the normal and desirable values after the PE investor leaves the company.

Regarding the turnover ratio (measure of efficiency) the results show that in the first year after the exit, turnover ratio increase and when adjusted to industry this median variance is statistically significant. However, there is a slight decrease in all the following years.

In sum, it appears that after the PE investor leaves the company they continue to create value, although slightly less. The decline is essentially the result of a strong decline in the companies' margins. However, is important to mention that among the 30 companies in the sample five of them are dissolved nowadays.

3.4.3. CAPITAL STRUCTURE

Table 11 shows the evolution of financial autonomy ratio after the exit and we can verify that the ratio decreases in the first and second year (median of -0.02 and -0.01 percentage points, respectively) but increases in the third year (median of 0.01 percentage points). However, none of these variations is statistically relevant. These results show us that after the PE exit there is an increase on debt to financing of assets on target companies and then, in the third year after the exit strategy, a replacement of debt by equity.

When adjusted the ratio to industry, the results are a little different. As we can see below, the financial autonomy has an increase in the first year after the exit (median of 0.004 percentage points), following a decrease in the next three years (-0.08, -0.09, -0.11, in t+2, t+3 and t+4, respectively). Thus, these results indicate that in the first year after the divestment the target companies continue to have equity to finance their own business but after that, in t+2, t+3 and t+4, the autonomy ratio seems to be decreasing leading to the replacement of equity by debt. This negative change is not surprising since the divestment by PE firms necessarily imply an increase in the debt capital, thereby decreasing the percentage of assets financed by equity. Also, none of these variations is statistically relevant.

Table 11: Autonomy ratio results (median variation)

Year relating to the exit transaction	t-1...t+1	t-1...t+2	t-1...t+3	t-1...t+4
Autonomy ratio				
Variation (median) p.p.	-0.02	-0.01	0.01	-0.02
n° observations	28	24	20	17
Variation(median) adjusted to industry p.p.	0.004	-0.08	-0.09	-0.11
n° observations	26	21	18	14

*, **, *** significantly different from zero at 10%, 5% and 1%, respectively

3.5. OPERATIONAL PERFORMANCE AND CAPITAL STRUCTURE ANALYSIS BY EXIT ROUTE

In Table 12 we present the financial autonomy ratio by exit route. The results show that in the first year after the exit the financial autonomy drops more after a buyback reflecting the necessity of new funds to buyback the shares belonging to the PE investors. However, in the long term the financial autonomy increases consistently. After a trade sale there is a constant evolution year by year with slight negative variations but not relevant. The evolution of the financial autonomy after a secondary buyout – a decrease in financial autonomy ratio – is consistent with the fact that the new PE fund will use even more debt to follow its strategy.

Table 12: Financial autonomy ratio results by exit route (median variation)

Financial autonomy ratio	t-1...t+1	t-1...t+2	t-1...t+3	t-1...t+4
Buyback				
Variation (median) p.p.	-0.06	0.09	0.07	0.01
n° observations	10	8	6	4
Variation (median) adjusted to industry p.p.	-0.24	-0.12	-0.02	-0.13
n° observations	8	5	4	1
SOB				
Variation (median) p.p.	-0.01	-0.07	-0.08	-0.03
n° observations	5	4	4	4
Variation (median) adjusted to industry p.p.	-0.01	-0.05	-0.19	-0.13
n° observations	5	4	4	4
Trade sale				
Variation (median) p.p.	-0.03	-0.01	0.01	-0.01
n° observations	13	12	10	9
Variation (median) adjusted to industry p.p.	0.10	-0.08	-0.09	-0.09
n° observations	13	12	10	9

*, **, *** significantly different from zero at 10%, 5% and 1%, respectively

Table 13, shows that after a buyback the company has a more favorable evolution of the ROA when comparing with the previous year before exit (t-1) with median of 0.02, 0.09 and 0.08 percentage points, respectively. After industry adjustments we can conclude also that in all the years the sample selected has a better performance than the ones in the same sector. Thus, companies that have intervention of PE firms have a greater performance when compared with all the sector companies.

Table 13: ROA results by exit route (median variation)

ROA	t-1...t+1	t-1...t+2	t-1...t+3	t-1...t+4
Buyback				
Variation (median) p.p.	-0.05	0.02	0.09	0.08
n° observations	10	8	6	4
Variation (median) adjusted to industry p.p.	-0.06	-0.06	0.03	0.09
n° observations	8	5	4	1
SOB				
Variation (median) p.p.	-0.07	-0.08	-0.07	-0.07
n° observations	5	4	4	4
Variation (median) adjusted to industry p.p.	-0.08	-0.16	-0.12	-0.08
n° observations	5	4	4	4
Trade sale				
Variation (median) p.p.	-0.02	-0.01	-0.04	-0.03
n° observations	13	12	10	9
Variation (median) adjusted to industry p.p.	-0.001	-0.02	-0.07	-0.08
n° observations	13	12	10	9

*, **, *** significantly different from zero at 10%, 5% and 1%, respectively

Table 14 and 15 present the EBITDA margin and turnover, respectively. The results in both tables suggest us the same conclusions. The buyback is the exit route that allows the company a better operating performance and capital structure after the divestment of PE firms. This result suggests some asymmetric information between the entrepreneur and the private equity investor that leads the entrepreneur to benefit more after regain the full control in the company. This is not surprise if we believe that the entrepreneur have a better knowledge than the PE investor of the situation and future problems of the company.

Table14: EBITDA margin results by exit route (median variation)

EBITDA MARGIN	t-1...t+1	t-1...t+2	t-1...t+3	t-1...t+4
Buyback				
Variation (median) p.p.	-0.04	0.06	0.17	0.19
n° observations	8	6	5	3
Variation (median) adjusted to industry p.p.	-0.11	-0.09	-0.01	0.15
n° observations	7	5	4	1
SOB				
Variation (median) p.p.	-0.003	-0.04	-0.03	-0.01
n° observations	5	4	4	4
Variation (median) adjusted to industry p.p.	-0.06	-0.21	-0.15	-0.09
n° observations	5	4	4	4
Trade sale				
Variation (median) p.p.	-0.02	-0.02	-0.03	-0.06
n° observations	11	10	8	8
Variation (median) adjusted to industry p.p.	-0.02	-0.04	-0.06	-0.08
n° observations	11	10	8	8

*, **, *** significantly different from zero at 10%, 5% and 1%, respectively

Table 15: Turnover ratio results by exit route (median variation)

Turnover	t-1...t+1	t-1...t+2	t-1...t+3	t-1...t+4
Buyback				
Variation (median) p.p.	0.07	-0.01	0.10	-0.09
n° observations	8	6	5	3
Variation (median) adjusted to industry p.p.	0.15	0.06	0.17	-0.06
n° observations	7	5	4	1
SOB				
Variation (median) p.p.	-0.12	-0.36	-0.41	-0.20
n° observations	5	4	4	4
Variation (median) adjusted to industry p.p.	-0.13	-0.45	-0.47	-0.20
n° observations	5	4	4	4
Trade sale				
Variation (median) p.p.	0.11	-0.04	-0.01	0.02
n° observations	11	10	8	8
Variation (median) adjusted to industry p.p.	0.12	-0.05	-0.11	0.03
n° observations	11	10	8	8

*, **, *** significantly different from zero at 10%, 5% and 1%, respectively

Overall, we can conclude that buyback is the exit route with better performance following the trade sale and then the SBO. It seems not to be consistent with Cumming and Macintosh (2003b) that show that higher quality portfolio companies are likely to be exited, in order of probability, by an IPO, a trade sale, a secondary sale, a buyback and a

write-off. Buyback occupies just the third position (considering the absence of IPO in Portugal).

4. CONCLUSIONS

In Portugal, studies that aim to analyze the impact of PE industry tend to focus on a qualitative analysis of this industry, especially by conducting surveys about companies of PE. Although in the last years efforts have been made, particularly by conducting dissertations on this topic. These studies have focus on the impact during the holding phase (analyzing operating performance and capital structure), and there are no analysis in Portugal regarding the impact that PE firms continue to have even after an exit strategy in portfolio companies.

This dissertation studies the Portuguese PE industry and examines the change on operating performance and on capital structure of portfolio companies after the PE investor leaves the company. We use a self-collected sample of 30 companies between 2005 and 2012 (years with possible available data/information).

Analyzing the transactions occurred in Portugal, we can conclude that the Portuguese PE market is still a market far from its maturity. The more relevant period for exit transactions emerged in 2007 and 2008. Furthermore, it is a market with little competition dominated and controlled by four major PE houses and where banks and bank affiliate institutions are the main players.

Regarding the post-exit operating performance and capital structure, the results show a decline of EBITDA in the years after the exit. Concerning turnover and assets we have different evolutions. We get a steady and significant growth in total assets and only a small growth in all four post-exit years in turnover. These findings are consistent with Chung (2011), suggesting that PE investors look for private companies with larger profitability and growth opportunities, even in long term (post-exit strategy). Also Jensen's theory can be proved here when refers that organizational changes play an important role in the efficiency gains.

Although portfolio companies increase their assets and turnover significantly after the exit, their operating performance is very poor.

The analysis of the three operating performance measures – return on sales as measure of profitability, return on assets as a measure of productivity and asset turnover as measure of efficiency – leads to the conclusion that the operating performance does not improve and even deteriorates in the years after the exit strategy. All the three measures exhibit an inferior performance when compared to the last full year before the

exit. However, none of the measures proved to be statistically significant. Industry-adjustment reveals that the operating performance is below the industry, suggesting that the low performance is only slightly explained by time and industry effects.

Also, after the exit our results show a decline in the financial autonomy. This negative change is not surprising since the divestment by PE firms necessarily imply an increase in the debt capital, thereby decreasing the percentage of assets financed by equity.

Finally, I would suggest some topics for future research. Firstly, aware of the limitations that this dissertation presents, would be relevant to do a review of this dissertation in the future due to the restrictions related to the sample size. More transactions could trigger better and more efficient conclusions. Moreover, would be interesting to assess the impact of PE after exit on a longer horizon, as well as between different countries.

On the other hand, given the apparent ability to create value in this type of investment, it is also important to understand how this is achieved, trying to measure the importance of different factors of the value creation. This implies a more detailed and complex data information.

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APPENDIX

Capital IQ database

Capital IQ is a database commercialized and managed by Standards & Poor's which began its data services in 1999. As all databases, Capital IQ has as well some sample issues and potential biases. This database covered a lot of transactions, however, is incomplete for some older and younger transactions. We found during the study many other companies/transactions in Portugal that do not appear in the Capital IQ. On the other hand, since this database is in continuous update process probably even some recent transactions may not appear. However, taking into account these potential distortions, we believe that the sample collected covers most of the transactions that occurred in Portugal and is the best representation of the PE industry in Portugal.

SABI database

The SABI database is marketed and managed by Bureau Van Dijk and contains accounting and other financial information for more than 20.000 Portuguese companies for 10 years (2003-2012),

The first distortion we found has to do with the fact that not covers the entire Portuguese business market by some companies identified in our database Capital IQ. The sample is small (30 companies) and could be higher if there were sufficient accounting information for all the companies extracted in Capital IQ. The period of time covered by this database is also a distortion because we only have accounting information from 2003 to 2012 and companies that had the divestment before 2003 we don't find no data (which led to the exclusion of some companies).